

CLAIMS

1. A print engine/controller to drive an ink drop print head comprising:
- 5 an interface at which to receive compressed page data;
decoders to decode respective types of image planes in the received compressed page data; and
a half-toner/compositor to composite image plane data;
the half-toner/compositor including:
- 10 a dot merger unit taking bits from the respective planes as inputs; and
a color mask register holding masking bits in number equal to the number of image planes;
respective input bits to the dot merger unit being ANDed with respective color mask register bits and the resultant bits Ored together to form an output bit in a
- 15 channel for which there is an ink at the print head.
2. A print engine/controller as claimed in claim 1 wherein the respective planes to the dot merger unit include three contone color planes and a high resolution plane and the color mask register is loaded with bits that are selected to
- 20 place the high resolution plane into any one of the respective color channels.
3. A print engine/controller as claimed in claim 2 wherein a fixative channel is generated from any one or more of the respective planes and selected by what bits are loaded to the color mask register.
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4. A print engine/controller as claimed in claim 1 wherein the color mask register is loaded with bits that are selected to split a K plane into C, M, and Y channels for output to a print head without K.
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5. A print engine/controller as claimed in claim 1 wherein the half-toner compositor includes a tag encoder generating an infrared tag data plane and the

color mask register maps its dots into an infrared channel at the print head.

6. A print engine/controller to drive an ink drop print head comprising:

- 5 a contone image decoder to decode any compressed continuous tone image planes in the received compressed page data;
a high resolution image decoder to decode any compressed high resolution image plane; and
a halftoner/compositor including a dot merger unit controlled by a color mask to map image planes into channels corresponding to what inks are supplied in the
10 print head that is interfaced by the print engine/controller.

7. A print engine/controller to drive an ink drop print head comprising:

- 15 a contone image decoder to decode any compressed continuous tone image planes in the received compressed page data;
a high resolution decoder to decode any compressed high resolution image plane; and
a halftoner/compositor including:
20 a margin unit to apply margin data to the respective image planes during the composite process; and
a dot merger unit controlled by a color mask to map image planes into channels corresponding to what inks are supplied in the print head that is interfaced by the print engine/controller.

8. A print engine/controller chip to interface with an ink drop print head comprising:

- an interface at which to receive compressed page data;
a contone image decoder to decode any continuous tone image planes in the
30 received compressed page data;
a high resolution decoder to decode any high resolution image plane in the

received compressed page data;
a half-toner/compositor including to dither any continuous tone image planes and
composite any high resolution image plane data with any output plane including a
dot merger unit controlled by a color mask to map image planes into channels
5 corresponding to what inks are supplied in the print head that is interfaced by the
print engine/controller; and
a print head driver to output the composite to a print head.

9. An ink drop printer driven by a print engine/controller
10 comprising:

an interface at which to receive compressed page data;
a contone image decoder to decode any continuous tone image planes in the
received compressed page data;
a high resolution image decoder to decode any high resolution image planes in the
15 received compressed page data;
a half-toner/compositor to dither any continuous tone image planes and composite
high resolution image plane data with any output plane including a dot merger
unit controlled by a color mask to map image planes into channels corresponding
to what inks are supplied in the print head that is interfaced by the print
20 engine/controller; and
a print head driver to output the composite to a print head; and
a print head.

10. A method of operating an ink drop printer
25 comprising:

receiving compressed page data
decoding any continuous tone image planes in the received compressed page data
to generate output planes;
decoding any high resolution image plane in the received compressed page data to
30 generate an output plane;
dithering any continuous tone image planes



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forwarding composited data to a print head with image planes mapped to what inks are available at the print head.

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